

July
2003

Volume 23

Number 3

FORUM

© 2003 Risk Management Foundation of the Harvard Medical Institutions



RISK MANAGEMENT FOUNDATION HARVARD MEDICAL INSTITUTIONS

Teamwork in Health Care

- 3 Teamwork Failures Noted in Malpractice Claims
Heidi Groff, RN, NP, MPH
- 4 Case Study: Surgical Team Forgets a Foreign Body
Heidi Groff, RN, NP, MPH
- 5 Can Teamwork Enhance Patient Safety?
Eduardo Salas, PhD; Dana E. Sims; Cameron Klein; & C. Shawn Burke
- 8 How to Turn a Team of Experts Into an Expert Team
Eduardo Salas, PhD; Dana E. Sims; Cameron Klein; & C. Shawn Burke
- 10 From Theory to Practice: An Interview with Dr. Michael Leonard
Heidi Groff, RN, NP, MPH and Thomas Augello
- 14 Changing Culture: MedTeams in Labor and Delivery
Susan Mann, MD
- 16 I'm a Surgeon, Not a Teammate
William Berry, MD

Teamwork Failures Noted in Malpractice Claims

by Heidi Groff, RN, NP, MPH

Heidi Groff is a Loss Prevention Specialist for Risk Management Foundation of the Harvard Medical Institutions

Patients disappointed with their medical care are unlikely to file a malpractice lawsuit citing “poor teamwork.” What they do allege is that they suffered a diagnostic or treatment error due to poor coordination of care, or that they were harmed because of inadequate communication.

A significant proportion of those communication and coordination errors stem from suboptimal teamwork, particularly when patient information is (or should be) “handed off” from one caregiver to another. Pinpointing key opportunities for teamwork improvement, especially the best hand-off practices, is the goal of this *Forum* issue.

Under the coding scheme Risk Management Foundation (RMF) uses to capture data from claims and suits against CRICO-insured providers,¹ hand-off errors are not always readily identifiable. This broad issue is frequently obscured by other causative factors such as inadequate supervision, poor clinical judgment, failure to diagnose, technical errors, or even wrong site surgery. Nevertheless, over the past decade, more than 300 CRICO cases involving inadequate communication or coordination at points of patient information hand-offs resulted in nearly \$100,000,000 in payments and defense costs.

When one begins to review any subset of these hand-off cases, it is apparent that, in virtually all of them, the outcome could have been improved by enhanced teamwork skills among clinicians.

Differing Ideas on Teamwork and Communication

Clinical hierarchies generally afford physicians the greatest breadth of knowledge in patient care. But, they cannot and do not know everything. Medical students, residents, nurses, and support staff often hold a critical piece of information, have a “gut feeling,” or observe a pattern that they have seen before. Unfortunately, if the stage is not set for collaborative practice and good team communication, that important piece of information is not shared. Hand-offs across disciplines do not occur and information is lost.

For example, in a recent case, a labor and delivery nurse had a “bad feeling” about a fetal heart rate pattern for over an hour. She was unique among the care providers because she had the most current information about the fetal status. The nurse recalls that she very directly told the covering obstetrician that she was concerned. The physician’s memory was less clear about the urgency that the nurse identified.

The nurse had not worked often with the attending physician and was not particularly comfortable asserting herself. Although she was frustrated, and was worried about the mother and baby, the nurse decided to go along with the physician. Additionally, she did not escalate her concerns to the supervising nurse or physician chief. Ultimately, she finally stated that the mother needed to have a cesarean section—identifying a pattern and solution that she had seen before. The outcome of the birth was a non-viable fetus.

The results of this case may have been the same regardless of teamwork skills. That, however, does not alter the fact that this attending physician and nurse—a team of two—were not familiar with each other, and were not working together effectively. Here are some teamwork components missing from this case, and many similar incidents:

- respect for each other’s clinical assessment;
- portable team skills that rely on procedure, rather than personal familiarity;
- comfort in communication and a sense of safety in asserting an idea;
- use of conflict resolution resources;
- a shared plan of care; and
- flexibility in managing the patient.

Improving some aspects of team performance may not require a complex education or training regimen. Clinicians can use the following simple notions to address many teamwork shortfalls:

1. Know the names of the people with whom you work.
2. Know their skill sets and expertise.
3. Share your plan of care with residents, nurses, and support staff.
4. Establish and maintain leadership in a critical situation.
5. Invite other team members to watch for errors/omissions.
6. Listen to and respond to suggestions from nursing support staff.
7. Share mistakes.
8. Applaud good work and success.
9. Debrief after events.

Continued on next page

Surgical Team Forgets a Foreign Body

A 29-year-old woman required follow-up surgery to remove a piece of clamp after a cesarean section.

by Heidi Groff, RN, NP, MPH

Heidi Groff is a Loss Prevention Specialist for Risk Management Foundation of the Harvard Medical Institutions

Clinical Sequence

The patient was admitted for a repeat cesarean section. The scrub technician and the circulating nurse performed the initial instrument count and visual inspection. Nothing unusual was mentioned.

Shortly after the cesarean section began, the scrub technician was exposed to body fluids via a splash and had to leave. A second technician scrubbed in and, upon request, handed the resident assisting the operation an Allis clamp. When the resident could not effectively grasp with it, he noticed approximately one inch of the clamp to be missing from the tip. The resident handed the clamp back to the scrub technician, stating that it was broken, and asked for another.

Neither the resident nor the scrub technician mentioned the lost tip to each other or anyone else on the team. The resident then became distracted from tracking the lost tip by excessive bleeding and the need for additional anesthesia. After delivering the infant and controlling the bleeding, the attending was called to an urgent cesarean section elsewhere. The resident closed.

After the patient was returned to the recovery room, the resident ordered a KUB, which detected a foreign body. The patient was returned to the operating room for a second surgery that was prolonged when a requested fluoroscope was not immediately available.



Teamwork-related Discussion Points

Distractions, multiple demands, and workload pressures often build up unnoticed in the complex environment of the OR. In this case, several small teamwork-related errors contributed to the larger mishap of the team losing track of the broken clamp piece which in turn led to this patient requiring a second surgery and prolonged length of stay. Errors include:

Communication: Any information the first scrub technician had about the faulty Allis clamp was not shared as he left after the splash. The second scrub technician assumed that all the instruments were intact when she handed them to the resident.

No Shared Understanding: Due to the pace of the procedure and more urgent responsibilities, neither the resident nor the scrub technician shared the information about the broken clamp (or the potential of a foreign body being left in the abdominal cavity) with the nurse or the attending. As a result, that information was unavailable to others on the OR team.

Unclear Roles: No one person took responsibility for managing the lost piece while other team members were managing other clinical issues.

Supervision: The leader of the team was assumed to be the attending, but—as he was unaware any problem existed—he did not inform others or lead the team to resolution. When the attending left, the resident's focus shifted to finishing the operation.

Debrief: No one conducted an information closure (i.e., readback or pause to ensure that outstanding issues were addressed) prior to the close of the case. An opportunity to resolve the broken clamp/missing piece issue was missed.

System Issue: The policy for obtaining an X-ray whenever there is question of a retained foreign body was not invoked because the issue was never brought forth during the case.

Continued from previous page

From the Theoretical to the Pragmatic

Understanding the challenges of teamwork in health care begins with the realization that, while medical practice is like no other industry, much can be learned from other work cultures (e.g., creating an environment in which we can openly learn from our mistakes). Despite ingrained barriers, many practicing clinicians and departments are forging ahead by training and using behavioral skills to improve

their teams. Does teamwork make a difference in patient outcome? The following articles can provide a framework, from the theoretical to the pragmatic level, for answering that question. ■

Note

1 Harvard-affiliated physicians, hospitals, and their employees are insured for professional liability by the Controlled Risk Insurance Company (CRICO).

Can Teamwork Enhance Patient Safety?

Eduardo Salas, PhD; Dana E. Sims; Cameron Klein; & C. Shawn Burke; Department of Psychology & Institute for Simulation and Training, University of Central Florida

Dr. Salas is a Professor of Psychology at the University of Central Florida where he also holds an appointment as Principal Scientist for Human Factors at the Institute for Simulation and Training.

Yes, teamwork can improve patient safety. In fact, patient safety depends on it. Every day, teams of medical professionals make important decisions and actions regarding diverse and complicated treatments that affect the lives and well being of patients. These decisions are made in a complex environment that often involves:

- rapidly evolving, ambiguous situations;
- complex, multi-component decisions;
- information overload;
- severe time pressure;
- severe consequences for error; and
- performance/command pressure.¹

Medicine has responded to this complexity by becoming specialized. However, although each clinician has extensive skills in his or her own specialization, it is the coordination among those skills that make the quality of the patient's treatment a seamless success. Communication across multiple units, physicians, nurses, and others becomes vital to ensuring that accurate and complete information is available, properly exchanged, and regularly updated.

Researchers and medical professionals agree that patient treatment and safety is improved through interdisciplinary teamwork.² Policy makers and professional bodies have also been promoting teamwork as the preferred model of practice.³⁻⁴ The reality, however, is that teamwork occurs infrequently, is fraught with difficulties, and is misunderstood. For example, teamwork is often thought of as a program that administrators implement so everyone will like each other.⁵ That assumption is overly simplistic: teams operating in complex medical environments need to do more than simply "like each other."

What Teamwork Is

Teamwork is a set of interrelated behaviors, cognitions, and attitudes that combine to facilitate coordinated, adaptive performance.⁶ Teamwork is distinct from task work (i.e., operational skills). Both are needed for team effectiveness in complex environments, but knowledge and skill at the task are not enough. Effective teams have members who anticipate each other's needs; they can coordinate without the need to communicate overtly. Such implicit communications are vital in high stress, time-restrictive environments.

High-performing teams develop a sense of collective efficacy and "teamness." The individual members recognize their interdependence and believe in the ability of the team to solve complex problems, in this case to provide superior health care for patients. Further, effective teams optimize their resources. They are self-correcting, compensate for each other (i.e., provide back-up behaviors), and reallocate functions as necessary.

Finally, effective teams recognize potential problems or dangerous circumstances and adjust their strategies under stress (any trauma team member can tell you that things don't always go exactly as planned). When deviations in normal procedures occur, medical team members must be able to adapt to the dynamic nature of the situation. Teamwork is the mechanism by which this adaptation can be facilitated.

What Teamwork Is Not

Teamwork is not an automatic consequence of placing people together. Teamwork does not require that you like or "feel close" to your team members. Teamwork depends on a willingness to cooperate for a shared goal. In the health care field, that goal is maintaining the patient's health status and avoiding errors. Teamwork also does not require that you work with team members on a permanent basis. Teamwork is sustained by a shared set of teamwork skills, rather than permanent assignments that carry over from day-to-day.⁵

Although teamwork is often discussed in relation to medical professionals interacting in crisis situations, it is as imperative in daily routines as it is in emergencies. Teams that work well together in routine situations have already dealt with many of the interpersonal and organizational conflicts that often arise. These teams not only experience fewer crises, they manage these crises more effectively when they do occur.⁷⁻⁸ However, medical teams seldom maintain permanent, static membership. We need to understand the teamwork *knowledge, skills, and attitudes* (KSAs) that will transfer across teams and situations. Those that will benefit even newly formed teams include shared task models, adaptability, performance monitoring, and back-up behavior.

Continued on next page

Can Teamwork Enhance Patient Safety?

Continued from previous page

What Do Teams Think, Do, and Feel?

Teamwork requires the KSAs that allow interdependent coordinating action toward a shared goal. In the health care field, that goal is patient well-being through the maintenance of health status and averting health deterioration. By understanding the value of multidisciplinary contributions to teamwork, patient care, and safety—and the willingness to cross tradition-based role boundaries to improve patient care—teamwork can become embedded in the health care field. On the other hand, interdisciplinary differences in the value of teamwork and perceptions of what teamwork encompasses may be the largest impediment to the acceptance of working cooperatively.⁹

Figure 1 suggests a model of team performance which interprets teamwork as what team members think, do, and feel. Team members need to *know* the strengths and weaknesses of each other's abilities in order to anticipate and overcome difficulties. Team members must also know the team's mission, objectives, resources, and norms. They must know the team's tactical and strategic goals, what resources are available to achieve those goals, and what teammates expect of them in the process.

Further, team members must know how to sequence their tasks, how to develop cue-strategy associations, and possess shared task models. For instance, the facilitation of shared task models involves knowing the tasks, equipment, team member interactions, and problems encountered in performance environments in order to generate expectations and predictions about these systems. By understanding the unique roles and responsibilities of an

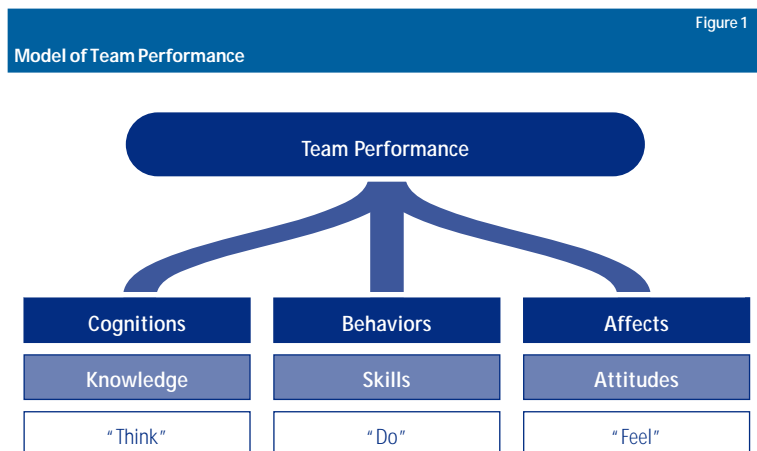
interdependent health care team (e.g., anesthesiologist, nurse, attending physician), even newly formed team members can quickly realize shared team models in a dynamic environment.

Team members also need to *do* a number of things to facilitate effective teamwork; certain behaviors and actions are necessary for effective team performance. First, team members in health care settings must proactively and reactively adapt to changing circumstances. They have to use information collected from the task environment or situation to make adjustments in the treatment plan or procedures. Next, team members must demonstrate clear and concise closed-loop communication. For this, team members must verify that sent messages are both received by the intended party and interpreted by the receiver correctly. Additionally, teams in complex environments must monitor their teammates and provide back-up behavior, demonstrate strong leadership, manage conflicts appropriately, make informed decisions, and promote coordinated action by synchronizing the team's task requirements, material resources, team member KSAs, strategies, and responsibilities.

Team performance also has an affective component; health care teams must *feel* motivated to achieve the team's mission, objectives, and tasks. They must also have a strong collective orientation and belief that the team can come together to successfully meet challenges that are too great for any single individual to overcome. Further, team members need a shared vision of the goals and mission (improving patient safety should become a component of this vision). Finally, effective teams have cohesion and a sense of mutual trust. Team members must be committed and attracted to the team as a means for task accomplishment in the dynamic environment of health care settings.

Doing, Feeling, and Thinking in Medical Teams

The dynamic and complex environment in which medical teams reside speaks to the application of past research on what teams do, feel, and think. Several specific behaviors, cognitions, and affects that facilitate teamwork have been identified in research on teams. Within that larger framework is a subset of factors that are especially relevant to medical teams (see *Figure 2*).



Teamwork depends upon the ability of each team member to 1) anticipate the needs of others, 2) adjust to each other's actions and to the changing environment, and 3) have a shared understanding of how a procedure *should* happen in order to identify when errors are occurring—and how to correct for those errors.

Adaptability refers to the ability to recognize deviations from expected action and readjust actions accordingly.¹⁰ Similarly, others have defined it as a team's ability to "adapt their strategies according to the particular task demands at hand."¹¹ The overall benefit of adaptability in medical teams is that it makes use of all the available resources (e.g., expertise of each of the team members) rather than following bureaucratic lines of authority that may produce inefficiencies in time-pressured environments.¹² The importance of this skill is driven by both the complexity and the interdependent nature of such teams. Medical teams meet both of these criteria. The work of interdisciplinary medical teams is complex, due not only to the idiosyncrasies the patients bring with them, but also due to staffing changes within a team that can bring a host of interpersonal variables, skills, and preferences that affect the team's functioning.

Performance monitoring allows team members to act as a second or third pair of eyes and ears by monitoring each other in an effort to catch mistakes, slips, or lapses prior to, or shortly after, they have occurred. However, in order for performance monitoring to be accepted by individuals it must be made clear that the purpose is to improve performance and patient safety, rather than to keep a record of mistakes for negative intentions. The focus should be on continuous improvement and development, not administrative or punitive actions.

A preventable adverse outcome is often made up of many "trivial" errors. By reducing a subset of those trivial errors, the adverse outcome may be avoided altogether. Effective teams comprise members who monitor fellow members' work to catch and correct the small errors that can lead to big problems. This shared awareness also allows team members to detect deficiencies or overloads¹³ and shift work responsibilities to others as it becomes

necessary. If shared awareness is not created, errors may not be detected until they have resulted in adverse outcomes (e.g., a deterioration of the patient's status).

Back-up behavior can either be verbal feedback or behavioral assistance. Shared awareness regarding the task and the team also form the foundation for this skill. When shared awareness is achieved, the determination of when to "step in," as well as who should step in, is made clear. Shared awareness also assists in the delegation and reprioritization of certain tasks. Even small shifts in workloads, can minimize errors due to stress and overload.

Continued on next page

Figure 2

Team Knowledge, Skill, and Attitude Competencies	
Knowledge	<p>Performance Monitoring</p> <p>Applying appropriate task strategies in order to accurately monitor the performance of teammates, provide constructive feedback about errors, and offer advice for improving performance.^{a,b,c}</p>
Skills	<p>Back-up Behavior</p> <p>Ability to adapt to and anticipate other team member's needs through accurate knowledge of their responsibilities and the ability to shift workload among members to achieve balance during busier periods.^d</p> <p>Adaptability</p> <p>Ability to adjust strategies based on information gathered from the environment through the use of compensatory behavior and reallocation of intra-team resources.^{e,f,g,h}</p> <p>Team Leadership</p> <p>Ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, develop team KSAs, motivate team members, plan and organize, and establish a positive atmosphere.ⁱ</p>
Attitude	<p>Team / Collective Orientation</p> <p>Propensity to take other's behavior into account during group interaction and the belief in the importance of team goals over individual goals.^j</p>
References	
<p>a Cooper M, et al. Command and Control Teams: Techniques for Assessing Team Performance. Brooks Air Force Base, Texas: Air Forces Human Resources Laboratory, 1984.</p> <p>b Oser RL, et al. Toward a Definition of Teamwork: An Analysis of Critical Team Behaviors. Orlando, Florida: Naval Training Systems Center, 1989.</p> <p>c Swezey RW and Salas E. Guidelines for use in team-training development. In Swezey RW and Salas E (Eds.), Teams: Their Training and Performance. Norwood, NJ: Ablex, 1992: pp.219-45.</p> <p>d McIntyre RM and Salas E. Measuring and managing for team performance: Emerging principles from complex environments. In Guzzo R and Salas E (Eds.) Team Effectiveness and Decision Making in Organizations. San Francisco, CA: Jossey-Bass, 1995: pp.149-203.</p> <p>e Johnston WA and Briggs GE. Team performance as a function of team arrangement and workload. Journal of Applied Psychology. 1968;52(2):89-94.</p> <p>f Kozlowski SWJ. Training and developing adaptive teams: Theory, principles, and research. In Cannon-Bowers JA and Salas E (Eds.), Making Decisions Under Stress: Implications for Individual and Team Training. Washington, DC: American Psychological Association 1998: pp.115-53.</p> <p>g Smith EM, Ford JK, and Kozlowski SWJ. Building adaptive expertise: Implications for training design. In Quinones MA and Dudda A (Eds.), Training for a Rapidly Changing Workplace: Applications for Psychological Research. Washington, DC: American Psychological Association, 1997: pp. 89-118.</p> <p>h Streufert S and Nogami G. Cognitive complexity and team decision making. In Swezey RW and Salas E (Eds.), Teams: Their Training and Performance. Norwood, NJ: Ablex, 1992: pp.127-51.</p> <p>i Zaccaro SJ, Rittman A, and Marks MA. Team leadership. Leadership Quarterly. 2001;12:451-83.</p> <p>j Driskell JE, and Salas E. Military psychology. In Dupuy TN (Ed.), International Military and Defense Encyclopedia. Washington, DC: Pergamon, 1992: pp.2216-24.</p>	

How To Turn a Team of Experts Into an Expert Team

Why does a highly trained set of individuals not always operate effectively as a coordinated team?

The answer is not simple, but research on teams operating in complex environments has provided some clues. For example, by focusing on the process by which decisions are made, implications from naturalistic decision-making theory have provided guidelines for improving the decision making of teams operating in real environments. Training must also be provided to actively detect errors, correct them, and then to proactively embed the lessons learned into organizational processes.¹

Training for medical professionals needs to clarify what errors need to be reported, how and why errors should be reported, and encourage prompt reporting to assist in making needed changes.² Respected members of the staff (e.g., physicians, head nurses, etc.) must model the expected behavior by admitting to errors and using their own experiences as opportunities for the team to learn. They should also seek out opportunities to promote teamwork and assist in effective teamwork behaviors. Eventually, once all employees witness that the culture provides a safe haven for admitting to, correcting, and learning from errors, they will begin to report their own errors.³ The goal is to make safety everyone's responsibility.

Based on previous research,⁴ we would suggest that a team of experts can be turned into an expert team by:

- fostering shared (or compatible) mental models of the task and of team member roles;
- training team members on teamwork skills such as situation awareness, open communication, team leadership, adaptability, and compensatory behavior;
- training adaptability so that tasks are not defined by status, but rather the patients' needs and the skills and abilities brought to the team;
- promoting closed-looped communication to prevent miscommunication and misunderstandings;
- providing team members with guided practice on skills needed to perform under naturalistic conditions;
- developing simulations that allow team members to experience different courses of action;
- linking cue patterns to response strategies not only with regard to tasks, but other team members;
- training (via demonstration, practice, and feedback) team members on each others' roles and on building realistic expectations about the task requirements; and
- training team leaders to maintain shared situational awareness by providing periodic updates to team members.

Clearly, some of these strategies are more or less relevant to some teams, depending on the specific circumstances and deficiencies. Equally clear, however, is the fact that simply throwing together a group of experts will not result in optimal team performance. Teams operating in complex environments require training in teamwork skills in order to facilitate maximum performance and avoid unnecessary errors.

References

- 1 Argyris C. Teaching smart people to learn. *Harvard Business Review*. 1991;69:1–15.
- 2 Mohr JJ, Abelson HT, and Barach P. Creating effective leadership for improving patient safety. *Quality Management in Health Care*. 2002;11:69–8.
- 3 Marx D. *Patient Safety and the "Just Culture": A Primer for Health Care Executives*. New York: Columbia University, 2001.
- 4 Salas E, Cannon-Bowers JA, and Johnston JH. How can you turn a team of experts into an expert team?: Emerging training strategies. In Zsombok CE and Klein G (Eds.) *Naturalistic Decision Making*. Mahwah, NJ: Lawrence Erlbaum Associates, 1997:359–70.

Can Teamwork Enhance Safety?

Continued from previous page

The underpinning of back-up behavior is acceptance that no one is exempt from human performance limitations such as stress, sleep deprivation, or cognitive overload. Traditional medical training conditions physicians to feel that they should have all the answers and are immune to mistakes. Realistically, they are still human—susceptible to the stresses inherent in their jobs and personal lives. Through back-up behavior, errors made due to stressors can be quickly corrected.

Making Medical Teamwork a Reality

Although a great deal of literature has suggested that interdisciplinary teamwork increases conflict and is fraught with problems, this may be related to the fact that traditional medical training does not teach professionals to collaborate, but rather to maintain a unidisciplinary perspective. The difficulties arising from this unidisciplinary perspective are due to differing values of each other's ability to manage treatment, differing visions of who is ultimately responsible for patient care, and what teamwork is. Fortunately, only a minimum level of understanding of fundamental teamwork processes is necessary in order for basic cooperation to occur.¹⁴ Changes in how health care professionals are trained to view teamwork (i.e., valuing the input of others, focusing on the benefits attained by the patient) may reduce conflict and improve team performance. Optimal interdisciplinary training begins early in medical education.

The key to implementing interdisciplinary teamwork, and seeing the benefits through error reduction and cost savings (e.g., reduced length of stays and readmissions), is knowing when a single medical provider is adequate and when to implement team care. When the benefits of teamwork are greater, health care institutions have the responsibility to implement, support, and train their practitioners to collaborate and cooperate, thereby improving patient care. This belief must be ingrained in the organizational culture in order for practitioners to buy in to the idea that teamwork delivers more effective patient-focused service. Otherwise, efforts to maintain unidisciplinary care structures will prevail, because they maintain the status quo and leadership interests of key persons.¹⁵

ABOUT FORUM

FORUM provides in-depth analyses of specific medical malpractice claims and issues along with practical loss prevention advice and case abstracts.

The Massachusetts Board of Registration in Medicine has approved **FORUM** as qualifying for the equivalent of AMA Category 1 continuing medical education credit suitable for the Massachusetts requirement in risk management education.

COPYRIGHT AND PERMISSIONS

All rights reserved; use by permission only.

Image on page 4 ©2003 Gettyimages.

Letters to the Editor and requests for **Permission to Reprint** should be addressed to the Editor, at:

Risk Management Foundation
101 Main Street
Cambridge, MA 02142
www.rm.f.harvard.edu

E-mail: Forum@RMF.Harvard.edu

Fax: 617.495.9711

CURRENT DISTRIBUTION

FORUM is published quarterly by Risk Management Foundation of the Harvard Medical Institutions, Inc.

FORUM is distributed at no charge to institutions, staff, and physicians insured by the Controlled Risk Insurance Company (CRICO). Subscription is provided on request.

Non-CRICO insureds may subscribe on line at www.rminteractive.com.

ELECTRONIC DISTRIBUTION

Forum archives are available at www.rminteractive.com.

Editor

Jock Hoffman

Issue Editor

Heidi Groff

Editorial Staff

Tom A. Augello

Annette Bender

Jessica Bradley

Kathleen Dwyer

Frank Federico

Robert Hanscom

Luke Sato, MD

Mary Schaefer

Production Designer

Alison Anderson

Improved teamwork—the seamless integration of multiple knowledge, skill, and affective competencies—is a mechanism to improve patient safety and avoid errors. Understanding the nature of teamwork and how its interrelated components manifest themselves in terms of cognitions, behaviors, and affects is critical to promoting coordinated, adaptive team performance in increasingly complex and dynamic medical environments. To answer the initial question again, yes, improved teamwork can improve patient safety. ■

Notes and References

- 1 Orasanu JM. (1990). Diagnostic approaches to learning: measuring what, how, and how much: Chapters 12, 13, and 14. In Frederickson N and Glaser R (Eds.), *Diagnostic Monitoring of Skill and Knowledge Acquisition*, Hillsdale, NJ: Lawrence Erlbaum Associates, Inc., 1990:393–405.
- 2 Calman K and Hine D. A Policy Framework for Commissioning Cancer Services. A Report by the Expert Advisory Group for the DOH. London: HMSO, 1995.
- 3 Department of Health. *The New NHS: Modern and Dependable*. London: HMSO, 1997.
- 4 Standing Committee on Postgraduate Medical and Dental Education. *Multiprofessional working and learning: Sharing the educational challenge*. London, 1997.
- 5 Morey JC, et al. Error reduction and performance improvement in the emergency department through formal teamwork training: Evaluation results of the MedTeams project. *Health Service Research*. 2002;37:1553–81.
- 6 Cannon-Bowers JA, et al. Defining competencies and establishing team training requirements. In Guzzo RA and Salas E (Eds.), *Team Effectiveness and Decision Making in Organizations*. San Francisco: Jossey-Bass, 1998:333–81.
- 7 Davies JM and Helmrich RL. Simulation: It's a start. *Canadian Journal of Anesthesia*. 1996;43:425–29.
- 8 Reason JT. *Managing the Risks of Organizational Accidents*. Aldershot, England: Ashgate Publishing, 1997.
- 9 Freeman M, Miller C, and Ross N. The impact of individual philosophies of teamwork on multi-professional practice and the implications for education. *Journal of Interprofessional Care*. 2000;14:237–47.
- 10 Priest HA, et al. Understanding team adaptability: Initial theoretical and practical considerations. Proceedings of the 46th annual meeting of the Human Factors and Ergonomics Society. Baltimore, MD, 2002:756–60.
- 11 Cannon-Bowers, JA, Salas E, and Converse S. Shared mental models in expert team decision making. In Castellan, Jr NA (Ed.), *Individual and Group Decision Making: Current Issues*. Hillsdale, NJ: Lawrence Erlbaum Associates, 1993:221–46.
- 12 Mohr JJ, Abelson H T and Barach P. Creating effective leadership for improving patient safety. *Quality Management in Health Care*. 2002;11:69–78.
- 13 Smith EM, Ford JK, and Kozlowski SWJ. Building adaptive expertise: Implications for training design. In Quinones MA and Dudda A (Eds.), *Training for a Rapidly Changing Workplace: Applications for Psychological Research*. Washington, DC: American Psychological Association, 1997:89–118.
- 14 Swezey RW and Salas E. Guidelines for use in team-training development. In Swezey RW and Salas E (Eds.), *Teams: Their Training and Performance*. Norwood, NJ: Ablex, 1992:219–45.
- 15 Lowe F and O'Hara S. Multi-disciplinary team working in practice: Managing the transaction. *Journal of Interprofessional Care*. 2000;14(3):269–79.

From Theory to Practice: An Interview with Dr. Michael Leonard

by Heidi Groff, RN, NP, MPH, and Thomas Augello

Heidi Groff is a Loss Prevention Specialist for Risk Management Foundation of the Harvard Medical Institutions. Tom Augello is Senior Editor, Multimedia for RMF.

Michael Leonard, MD has been deeply involved in researching, writing about, and implementing patient safety for several years. Formerly an Instructor in Anesthesia at Beth Israel Hospital in Boston, Dr. Leonard is currently Director of Patient Safety for the Colorado Permanente Medical Group and is Physician Director of Patient Safety for Kaiser Permanente, in Oakland, California. Forum recently spoke with Dr. Leonard about the value teamwork adds to patient safety.

Forum: What is the link between patient safety and teamwork?

Leonard: When clinicians don't effectively communicate, the risk of something going wrong increases substantially. Adverse medical events are frequently the result of ineffective team communication: either not having enough information, losing it across the transitions of care, or one clinician having a different "picture" of what's supposed to be done than others caring for the same patient. Multiple people caring for a given patient need a systematic process to facilitate communication and keep everyone in the same "movie."

What gets in the way of more effective teamwork among clinicians?

First, we have the historical mindset that people have been trained to be expert individuals and act by themselves, i.e., if they're trying hard, they can manage any situation. Currently, the complexity of the care environment has evolved beyond the ability of any one person to keep track and manage all that information. The new reality involves learning in a different way, getting teams of people together—physicians, nurses, pharmacists, and others—and working with some fundamental techniques to enhance communication and to ensure that they're going to deliver the right care.

What limitations affect clinicians as individual caregivers?

One is multi-tasking—look at the traffic accidents with people trying to drive and talk on cell phones, trying to do two things at once. Another limitation is short-term memory. An individual can mentally hold about five pieces of information, but think of a clinician during a busy day with the pager going off repeatedly, talking on the phone, multiple people tugging on his sleeve, trying to write in a chart, and the patients backing up. We're constantly exceeding the ability of our brains to manage and capture all that information. The game has rapidly changed around us and will continue to do so.

We also know fatigue has a huge impact on the ability to process complex information. Drew Dawson's data indicate that 24 hours without sleep is equivalent to a blood alcohol of 0.10.¹ But physicians routinely work after they've been on call all night, nurses work double shifts, et cetera. Since fatigue certainly does affect their performance—and their potential for error—we need to be wiser about our staffing and how we schedule people.

Stress is another factor. In one study,² surgeons were asked whether extreme stress, emergency situations, or difficulty in their personal lives, affected their performance. About two thirds said, "absolutely not." The human factors literature argues strongly to the contrary. For example, we know that a well-trained physician, nurse, or pharmacist, can take the correct drug vial off the shelf 999 times out of 1,000 in a calm, relaxed environment. But in a stressful environment, say a patient's had a cardiac arrest or somebody in front of them is blue because they can't breathe, the error rate may go as high as 25 percent. Acute stress actively degrades performance. The best answer we have is to work collaboratively as a team with clearly defined goals so we can keep ourselves and our patients safe.

How can clinicians manage their limitations?

Once we accept that we're working in an environment that often will surpass our individual capabilities, then we can create a safer environment where we can work collectively, talk together, and have a common vision.

Here's a simple example of setting the stage nicely before embarking on a clinical challenge. We recently began doing a new procedure, an endovascular aortic graft, which involves putting a \$20,000 graft inside a patient's aorta (instead of a traditional aortic aneurysm repair). It is a complex procedure: 15–20 people in the cardiac cath lab—which is not where we normally work—lots of people we didn't know. When the chief of vascular surgery walked in the room, the first thing he said was:

"I have no pride invested in this case. I just want to get it correct. If any of you see me doing the wrong thing, or if you have any ideas of how we can do this better, please speak up. We're all here to do the right thing. We're all learning, so let's work together."

He then introduced himself by his first name to every individual in the room. He flattened the hierarchy, established relationships, and created an environment in

which it was going to be a lot easier for people to speak up. That's how somebody can create teamwork, or create a mindset that helps people work together effectively.

How do you “sell” teamwork to a clinician who is skeptical, or simply feels too busy?

We show them that by investing a small amount of time up front in effective communication, building the team, and creating a common mental model, that their clinical day is going to be simpler, safer, and easier for all involved.

One example comes from briefings in operating rooms. When we first launched our briefings project in Kaiser Orange County [California], the surgeons were saying, “Why should I care? Why should I do this?” What we were talking about was a one- to two-minute focused conversation in the operating room before they started the operation. The “wake up” for the surgeons was the realization that the other OR staff frequently did not share the clear picture they had relative to the procedure, and through briefing—getting everyone on the same page—they were far more likely to have the correct equipment, people, and skills present to get the job done well.

The greatest upside to the surgeons—what won them over and made briefing “the way they do business”—was the realization that this small investment of time in effectively communicating with the team prevented about 90 percent of those magic moments in the middle of a case where things come to a screeching halt because something essential is missing and everyone has to wait while the equipment, supplies, or person is obtained. Briefings were effective because the people doing the work saw a significant return on the investment of their time to make sure everyone knew what the game plan was.

What was the improvement there?

The surgeon, the anesthesiologist, the nurse, and the scrub nurse or technician all engaged in a one- or two-minute conversation about what were they going to do, what equipment they would need, what they would need from each other, and any special factors. The surgeon would go first and say, “This is what I need you all to know when I’m doing a case.” And then it was everybody else’s turn to say to the surgeon, “This is what we all need to know from you.” The striking part here was the looks of interest and outright surprise on their faces. The surgeons had no idea that it’s a big deal to the nurses whether the surgeon is on call (the nurses want to know if they’re going to have to answer the surgeon’s pager 45

times in the next three hours). Realizing that frequently the doctors did not know the names of the others they were working with, they also incorporated having everyone write their names on the magic marker board where they count the instruments and sponges, and the physicians agreed to use their names. Familiarity was the key: it’s much easier to talk to somebody with whom you have a relationship.

A year into this OR briefing project they had substantial results; in fact, they had the highest scores across Kaiser Permanente in perceptions of safety climate and teamwork in the operating room. An unanticipated, but wonderful, benefit has been reduced nursing turnover—19 nurses the year prior and none since. Eighty percent of the nurses in those operating rooms said they were comfortable speaking up and that they felt that their input would be welcome. That’s probably a record percentage for the operating rooms that I’ve worked in.

Do physicians and nurses communicate differently?

Yes, and this is important to reconcile if doctors, nurses, and others are going to effectively communicate. Nurses are trained to be narrative and descriptive; the end result is that they describe things with broad brushes. Physicians, on the other hand, want the headlines: “What’s the problem? What’s the fix?” So what happens millions of times a day in American health care is that a nurse picks up the phone and starts to describe a situation with a patient, painting a broad narrative picture. Meanwhile, the physician on the other end of the phone is thinking, “What do they want? Tell me what the problem is and we’ll fix it.” That’s the fundamental mismatch in how these people are communicating.

One tool we have used widely to bridge this difference is the Situational Briefing model, or SBAR (Situation, Background, Assessment, and Recommendation). SBAR is helpful for the nurses when they pick up the phone, because they know that after they describe the *situation*: “I’ve got Mrs. Jones, who is acutely short of breath; and the *background*: “She’s got chronic lung disease, has been sliding downhill, and now she’s suddenly worse”; then they have to get to the *assessment*: “I don’t have any breath sounds on the left side of her chest. I think she’s got a pneumothorax;” and finally, the *recommendation*: “I need you here now. I believe she needs a chest tube pronto.”

Continued on next page

Continued from previous page

SBAR not only ensures that everybody gets what they want, but also helps develop critical thinking: when people pick up the phone, they have this model in their mind of what they actually have to deliver. SBAR is an effective bridge for a group of people who interact all day long, but who are trained to communicate differently.

What is the difference between novice and expert decision makers?

An “expert”—an internist, surgeon, or nurse who’s worked in medicine for 10, 15, 20 years—makes decisions by pattern matching. When they see a patient or a clinical situation, they have a large mental library of experience to match against. They can walk into a clinic or emergency room and their gestalt is, “This patient’s sick,” and then they start to fit the patterns in order to get to, “Bingo! It’s this, and I’m going to do these things, and this is how we’re going to verify or ensure that we’re correct.” It is a rapid process, and quite accurate if the expert continues to confirm the diagnosis against incoming information.

For “novices” (medical students, interns, new nurses, nursing students, or even traveling nurses) the mental file folder is empty. They need to use a procedurally-driven process in making decisions, which is quite slow and prone to error. One example is a brand new intern clutching her Washington University manual of medical therapeutics as if life itself emanates from it—because she doesn’t know how to make decisions. What she does have is a “cookbook” that says, “If a patient has heart failure, do the following 12 things.”

What’s critical when experts work with novices—which happens every day—is for the expert to slow down a little bit and realize that the novice cannot perform on their level and keep up with them. The expert needs to explicitly state—to the point that seems overly obvious—what is going on: “This is the problem. This is how we’re going to fix it, and this is how we’re going to know if we’re right.” The expert on the team needs to go through that process, otherwise he or she ends up thinking, “This novice is kind of useless. I’m just going to fix the problem,” and the novice on the team ends up wondering (but not learning) “How did he know that?” The experts need to go out of their way to include the novices in the process, so they can become experts. Otherwise they are not teammates, but

We show them that by investing a small amount of time up front in effective communication, building the team, and creating a common mental model, that their clinical day is going to be simpler, safer, and easier for all involved.

rather independent operators at different skill levels often not on the same page.

What skills influence clinicians’ operating in a team structure?

There are specific teamwork skills for people in medicine that appear to be universally applicable across health care from open-heart surgery to the ICU to the outpatient clinic.

One, which I’ve already discussed, is *briefing*: getting a group of clinicians to set the stage and communicate effectively. Another is *assertion*.

Assertion is usually not a big deal for *physicians* because they’re at the top of the food chain, but it’s a huge issue for people lower in the hierarchy. What we’re talking about is how we can give less empowered people a mechanism for speaking up when they see something wrong. We don’t want somebody standing in the room saying to herself, “This is a mistake,” but unable to tell people. When we’ve looked at survey data—using Brian Sexton’s survey³—a high percentage of nurses say it would be difficult to speak up if they saw a physician making a mistake. In the JCAHO data on wrong site surgeries, the majority of the time someone in that OR knows the wrong thing is being done and can’t find a way to say so.⁴

A while back in my institution, an anesthesiologist and a circulating nurse took an awake patient to the operating room for shoulder surgery and proceeded to put in a nerve block on the wrong shoulder. The scrub nurse knew they were wrong, and started talking to them, but in an oblique way (nicknamed “hint and hope” in the aviation world)—which is quite typical. Their perception was, “We don’t know what she’s talking about. She’s being a pain in the neck. We’ll talk to her later.” So they continued on and performed a successful procedure on the wrong side. Afterwards, the scrub nurse’s version was “I told him he was doing the wrong thing and he wouldn’t stop.”

What else?

Situational awareness is another universal team skill. How do we keep everyone on the same page, and what are the red flags that tell you that you’re getting off in the margins? (For example: things are going sour with the patient and it gets quiet, as opposed to enhancing and increasing the communication. Or you get the sense of “it

doesn't feel right"—as an expert the pattern you are matching is telling you things didn't go well the last time you saw this.) Ideally, these skills tie together: everyone's on the same page, if someone sees (or senses) something that makes them uncomfortable, they have a standard way to openly communicate that to the rest of the team.

The last skill I'll talk about today is *debriefing*. This is an opportunity for individual, team, and organizational learning. At the end of the day or a procedure, the people involved can spend two to three minutes talking about "How did it go?" The more specific the debriefing, the more value it has. "What went well, what was difficult, what could we have done differently, and what did we learn."

"A great study on the incorporation of minimally invasive cardiac surgery reveals that teamwork and human factors played a large role in the teams that had the fastest learning curve and the best clinical outcomes.⁵ The key components were having dedicated individuals on the team who put a lot of value on debriefing. At the end of each procedure, they would say, "What did we learn? How could we do it differently? How are we going to come back to the table next time?"

What are some of the clinical teamwork skills that clinicians can use everyday in primary practice?

The University of Utah family practice program is using the first appointment slot of each day to have an all staff briefing. The effect, so far, is that the time for a patient to go through their system has been cut in half simply by the staff spending a little time at the beginning of the day to get on the same page, to look at who's coming in, the jobs, the challenges, and how they can approach those together.

Another technique being used at a number of Kaiser primary care clinics is the five red flags, which can be customized for any particular team or care environment. These are fundamental sources of risk—different for every setting—deserving teamwide attention. For example:

- What are the five medications our patients are on that increase the risk of having a problem?
- What are the five conditions that we cannot afford to miss in our clinic (like acute heart attack or MI)?
- What are the five tests we can't afford to lose?, or
- What are the five ways that the ball gets dropped?

This exercise creates a common conversation in an outpatient clinic where they say, "This is the stuff that causes problems and puts people at risk. These are the things we want to think about every time." It also creates a common mental model and a common safety net across that care environment.

Where do you go with this?

Our next phase in the OR is using direct observation to try to collate actual individual task performance and teams behaviors. Ultimately, the Holy Grail, is to demonstrate the impact of briefings on clinical outcomes. We are also seeing more and more evidence that if we invest in improving the environment for the people delivering care, everybody wins. ■

References

- 1 Dawson D and Reid K. Fatigue, alcohol and performance impairment. *Nature*. 1997;388:235.
- 2 Helmreich RL. On error management: lessons from aviation. *British Medical Journal*. 2000;320:781–85.
- 3 www.ihl.org/conferences/summit/pssummithandouts/R_CulturalSurveyQuestionnaire.pdf
- 4 Lessons learned: wrong site surgery. Sentinel Event Alert, Joint Commission on the Accreditation of Healthcare Organizations. 1998;6
- 5 Pisano GP, Bohmer RMJ, and Edmondson AC. Organizational Differences in Rates of Learning: Evidence from the Adoption of Minimally Invasive Cardiac Surgery. *Management Science*. 2001;47(6):752–68.

Changing Culture: Pilot Implementation of MedTeams in Labor and Delivery

by Susan Mann, MD

Dr. Mann is Director of Quality Improvement for Obstetrics/Gynecology, Beth Israel Deaconess Medical Center.

Recently, a patient persisted in her request for a vaginal birth after a previous cesarean section despite troublesome changes in the fetal heart rate pattern. This decision caused her attending obstetrician some concern about the risk of a potentially catastrophic uterine rupture. A last-resort measure to use an amnioinfusion to monitor the labor was begun. Shortly thereafter, the patient's nurse, aware of this uterine rupture risk, notified the physician when the amnioinfusion procedure had an unexpected finding. As a result of their shared mental model, the procedure was stopped, the patient was able to have a vaginal delivery, and a potential uterine rupture was averted.

Health care is truly a team process. While individuals may hold key pieces of information, patient safety is enhanced only when that information is shared. The above event illustrates some of the impact of a culture change that has taken place in the Labor and Delivery Unit at Boston's Beth Israel Deaconess Medical Center¹ (BIDMC) over the past year. This change in culture promotes patient safety and an increased sense of a shared responsibility for patient outcomes. It has been brought about through a strong commitment to teamwork training.

The patient safety crisis detailed in the first Institute of Medicine report, *To Err is Human*,² is highlighted by medical malpractice judgments that have reached historic proportions, especially when obstetrics is involved. For some obstetricians, the rise in insurance premiums threatens to force them to leave or limit their practice.³

The IOM's follow-up report, *Crossing the Quality Chasm*, recommended focusing on teamwork, citing the success that the aviation industry has had with team-driven safety models.⁵ This recommendation had particular relevance to labor and delivery units: a high-risk environment in which decisions must be made quickly, with care coordinated between multiple disciplines (obstetrics, nursing, anesthesia, and neonatology). These decisions, and the quality of care provided, have an impact on the health of not just one, but two patients, mother and baby.

Brought to light by the IOM recommendations and the crisis in obstetric malpractice was the fact that no validated system currently exists to improve the coordination of care in labor and delivery. In 2002, BIDMC began to explore improvement methodologies.

The MedTeams Study

In January 2003, a multi-centered randomized controlled national trial, involving 15 military and civilian hospitals, utilizing teamwork training in obstetrics began. BIDMC, while not one of the hospitals participating in the study, is the lead hospital in the development of the "MedTeams" teamwork obstetric care delivery model being used at the study sites. The MedTeams training program evolved from two decades of study involving aviation safety training by the United States military.⁶ The behaviors and skills that reduce error in the high-stress aviation environment were first adapted for application in hospital emergency departments and are now being modified and evaluated for use in labor and delivery units.⁷⁻¹⁰

The basic principles of MedTeams involve the development of small, multi-disciplinary teams. Teams are kept small to enable team members the ability to maintain 1) an up-to-date (situational) awareness of the status of patients assigned to the team and the workloads of individual teammates, and 2) close proximity to each other so that frequent coordination, communication, and simple observation (cross monitoring) of fellow teammates can occur. The intent of this small team size and close proximity is to improve moment-to-moment care coordination and to provide opportunities to identify errors before they result in serious harm to the patient. Teams do not remove autonomy from the practitioner nor do they disrupt well-established physician-patient relationships. Rather, they serve as a "safety net" to reduce error, increase efficiency, and optimize outcomes.

As the pilot site, and in preparation for the larger multi-centered trial, BIDMC implemented MedTeams in its labor and delivery unit in July 2002. Preparation began back in January 2002 with identification of a steering committee to guide the process and the commitment of the medical and nursing staff. Beginning in April 2002, more than 200 obstetricians, nurses, anesthesiologists, midwives, residents, and support staff attended a four-hour training course of classroom instruction and exercises. Each class session involved approximately 20 providers from all disciplines.

The course content explains the value and power of teams and teamwork, including specific behaviors and skills to improve the coordination of the team in the delivery of safe patient care. The participants have an opportunity to practice and role-play many of the skills necessary to participate as effective team members. The response and

evaluations of the classes were universally favorable. Teamwork communication techniques and conflict resolution are subjects not, generally, addressed in medical or nursing school curricula, nor have they been the subject of postgraduate training courses.

Implementation

Following the completion of staff training, the unit was divided into smaller groups, or core teams, that provide direct patient care. In addition, a coordinating team was developed comprising a resource nurse, obstetrical attending physician, obstetrical anesthesia attending physician, and the chief obstetrical resident. Prior to the implementation of MedTeams, when shifts changed on BIDMC's Labor and Delivery unit, the disciplines signed out to one another independently. Following the implementation of MedTeams, in July 2002, interdisciplinary meetings are held to conduct an "aerial view" of the unit and then do appropriate resource management.

The steering committee members worked as coaches helping to form teams, hold meetings, and reinforce concepts central to the MedTeams training (including conflict resolution). The coaching process was sustained for two weeks. Initially, the coaches were present for a portion of a shift and often had clinical duties simultaneously. Initially, the vital role of coaching was not fully appreciated by the steering committee. An important lesson learned was that, in order to adequately support the process, coaches could not have dual clinical and coaching responsibilities. In addition, to adequately reinforce the process of culture change, coaching should have been sustained as an individual activity for a longer time frame.

Resistance to a change in the culture on the unit was seen in failure to attend core team meetings. The steering committee established an e-mail address for providers to post questions or comments. The steering committee continued to meet weekly to discuss issues such as managing resistance as well as to evaluate feedback. The resistance to core team meetings reduced over time, especially when the purpose of the meetings became clearer and participants saw how these meetings differed from the routine sign-out.

The core team meetings became an opportunity to discuss care plans and risk assessments for laboring patients. Any member of the team could ask questions about the

plan in a non-threatening environment. Some questions helped identify potential errors (e.g., several patients who were identified as high risk for hemorrhage were crossmatched for blood, a severely asthmatic patient was given stress steroids after her attending had overlooked a previous question about that need).

These meetings were also an opportunity for mentoring of newer nurses and physicians. In one case, an experienced physician helped a newer physician care for a difficult case involving a patient who had desired a vaginal delivery instead of a repeat cesarean section. This improved communication helped to increase satisfaction for the patient and to reinforce the skills of the newer physician. Clearly, this interaction only occurred because the subject had been raised during a core team meeting...a meeting that was primarily the result of the culture change introduced through MedTeams.

Another aspect of the training was shared mental models, i.e., each member of the team: the physician, nurse, and resident caring for a patient, has the same vision of the plan of care for that patient. When vocalized and understood by all team members, the shared mental model allows anyone to observe when the plan is not being followed and to question whether the digression is a lapse or if the plan has changed and the team was not updated.

Follow-up

A series of multidisciplinary staff meetings were held on the BIDMC Labor and Delivery unit. This allowed staff to discuss concerns and voice suggestions during the first six months after implementation of MedTeams. After instituting changes on the unit, the steering committee observed that reinforcement was necessary to sustain concepts and share successes. This next phase included the department chairman meeting with physicians in small groups to emphasize the importance of active participation. The Labor and Delivery nurse manager similarly held meetings to reinvigorate the nursing staff. A one-hour, mandatory, refresher course was developed to reinforce important concepts, such as communication techniques, using actual scenarios that occurred in labor and delivery under MedTeams in which positive change occurred. In addition, coaching was reinstated to assist in mentoring the MedTeams process.

Continued on page 18

I'm a Surgeon, Not a Teammate

by William Berry, MD

Dr. Berry is a consultant for Risk Management Foundation of the Harvard Medical Institutions, a recent graduate of the Harvard School of Public Health, and a cardiac surgeon.

A surgeon can stand in the same two square feet of operating room staring at the same six square inches of patient for hours at a time. Our focus can be so intense that the rest of the world melts away. Any surprise that surgeons do not feel like they are part of a team?

Here is how many of my colleagues and I think:

"These are my hands. I am responsible for what happens at the ends of my instruments. I have special training. I have earned advancement on my own merit, because I am good at what I do. No one else in the room can do this."

Surgeons are trained to be self-reliant; even though we work on teams from the beginnings of our careers and do our most critical work—in the operating room—in teams, many of us do not view ourselves as doing "teamwork." We were trained to be soloists, we do not really like playing duets. In fact, we're more likely to see ourselves as the conductor with ultimate responsibility and complete authority.

"This is my patient. I saw him before surgery. I do the operation. I will take care of him afterwards. No one else has that responsibility and nobody knows what I know . . . or needs to."

While we (surgeons) realize that the people around us perform technical services that are essential, those individuals do not have the big picture. They will not be there when it is all done. Only the surgeon will be there if something goes seriously wrong. No matter what we say or do, we feel responsible. From our first exposures as medical students, this responsibility is infused. On rounds, in the operating room, and at morbidity and mortality conferences, our characters are forged in the shape of individual responsibility. Those who make incisions on the human body and cause injury in seeking to improve health bear a unique burden and take that burden seriously. And, when there are complications, we feel individual responsibility.

Complications are a fact in every surgeon's world and that reality is often difficult to deal with. While we may default to the surgical ABCs (accuse, blame, and criticize) when things go badly, we are filled with the doubt that comes with the individual responsibility we assume. We are always thinking, "Could I have done something differently that would have prevented this?"

From Personal Introspection to Team-based Solutions

Self-doubt can be a good thing. The introspection of surgeons keeps us constantly improving, always analyzing, and never satisfied with what we do. We are individual continuous quality improvement machines. However, the key word here is "individual." With this strong bent toward individual responsibility and accountability in an environment that requires team function, what can we surgeons do?

First, we can communicate. The other people in the OR—even the other surgeons—are not mind readers. They cannot know what we need or anticipate a future need unless we share that with them. Sharing implies retention of control of the information; we are not giving it away. Surgeons like to control the flow of information when we work. Extraneous information just gets in the way. Sometimes the people around us can know too much and that can cause trouble too. Surgeons believe that when the people who help us know too much, they will begin to act independently with the information. We believe that by keeping information to ourselves, we will retain more control.

Problems arise, however, when parsimony with that information makes the surgeon the only one who knows what is going on. This becomes particularly visible when something serious goes wrong or when a team action is required quickly. Many times, the people around the surgeon will compensate for possible crises in advance. OR nurses will order more equipment than they know they will need, "just in case." They will have the instrument sets to do an open *or* closed cholecystectomy so that the surgeon will not have to wait if the situation demands change. Many times this is unnecessary and wasteful of time, space, energy, and money. Most of the time, the surgeon is not even aware that this is going on. Extra steps are taken because the information to make a reasonable decision is not available.

The antidote is communication. Information sharing makes everyone around the surgeon feel involved and accountable. In an operating room where groups of people are often thrown together for a single case or a single shift, anonymity is the rule. Nurses and technicians float from one room to another to give each other breaks, disrupting the continuity of the surgery and making information sharing even more difficult. Communication can bring the operating room team back together. The surgeon can empower others in the room by sharing

information with them; making them feel a part of the team and thereby improving their performance.

At the beginning of the case, share information. If someone is new because of shift change or a break, share information again. Overcome the inclination to remain silent in anger because they're getting a break and you're not. Share information. If the anesthesiologist is relieved to go eat lunch and the report that was given was not adequate in your judgment, share information. Do not remain silent thinking that it is someone else's responsibility. Do not find yourself later saying, "I knew that was going to happen." Do not rely on telepathy. Share information. Everyone, including the patient, benefits.

Captain of the Ship, Member of a Team

Being a good team member should not be confused with abdicating a leadership role. Everyone on a team needs to be clear about his or her role. Team members will be more secure and confident when they are clear about what is expected of them. In the operating room, the team looks to the surgeon for leadership. A ship really does need a captain. But, that need not get in the way of us also functioning as a member of the team.

That does not mean that we (surgeons) should expect or encourage only one-way information transfer. Rarely, do we have the complete picture. The anesthesiologist, nurse anesthetist, scrub nurses, circulating nurses, and technicians all have unique vantage points and information that is potentially useful or even critical for good decision making by the surgeon—information that needs to be shared. Surgeons who encourage communication in the operating room gain access to knowledge that would otherwise remain hidden.

We should challenge ourselves to take the following (simple) steps to reduce the risk of patient harm.

Share the Case

For example, have you ever started a procedure knowing that a blood transfusion was likely, not shared that information with any one but the chart, and then been frustrated when it took 20 minutes to get the blood? Have you ever not bothered to tell the anesthesiologist that this was going to be a particularly quick case only to have to wait at the end of the operation for the patient to be ready

Surgeons believe that when the people who help us know too much, they will begin to act independently with the information. We believe that by keeping information to ourselves, we will retain more control.

for extubation because the anesthetic was planned for a longer case? Have you ever had to wait for instruments that *you* knew you were going to need but only assumed everyone else knew? Not every eventuality can be foreseen, but most of the above situ-

ations can be avoided by sharing a sketch of the case at the beginning of the operation with all members of the team.

Take the first few minutes after you put on your gown and come to the field to organize the operation. Tell everyone what you plan to do, what you expect to happen, and how you think it's going to go. Raise special issues you might have, ask for equipment, blood, or drugs in advance. Now is the time to have someone find the suture that you're going to need in 10 minutes. Now is the time to let the anesthesiologist know that you'll need them to reposition the patient several times during the operation. Now is the time to agree on a strategy for antibiotic or fluid administration. End by asking for questions in a way that encourages everyone to speak. The whole process shouldn't take very long and in the long run you'll save time, reduce frustration, and keep everyone involved. Painless teamwork.

Remove the Barriers

Have you ever been frustrated to find the anesthesiologist giving large volumes of fluid to treat hypotension instead of bringing the problem to your attention, when you were compressing the vena cava and did not realize it? That kind of necessary information transfer can only take place when it is made clear that the surgeon is open to hearing it—or better, encourages it. We pay dearly for creating barriers. Inadvertently, we discourage communication through direct comments and our perceived attitudes. Without realizing, we send silent (and sometimes not so silent) messages to those around us that we are not open or interested in what they have to say. Then both they and we suffer for it. It takes conscious effort to change these perceptions, but the payoffs are great.

The atmosphere that you create at the beginning of the case sets the tone for everything that follows, so do your responses to questions. If you seem annoyed or short, the message will get through that you don't want any input and you'll miss information that is valuable. Communica-

Continued on next page

Continued from previous page

tion will shut down. If you find yourself in a position where you can't answer politely, put the question on hold and answer it later. You will be rewarded with the information that only multiple perspectives can bring.

Share Names

Often, everyone in the operating room knows the surgeon's name (and each other's) but the surgeon does not share the same knowledge. If you cannot know everyone is who is working in the OR today, make it your project to see that you can call everyone by name.

At a minimum, everyone working in the OR should have their names listed on a board and wear a readable nametag. Visitors should be identifiable too. Being "nameless" makes people feel uninvolved and less committed to what they do. Asking people for assistance by name gives them recognition as individuals and tells them that they have value. They will do more for you when you do. Work with the OR administration to see that it happens. If you believe that it will make a difference, become a champion. Do not let up until the playing field is level and you know everyone who knows you.

Give Thanks

Finally, take the time to thank the other members of the team before you leave the room. You cannot thank people enough and they do not assume that you thank them when you do not say it. Even when it seems redundant, do it. Even if you know that you will not work together as a team again, thank people for their efforts. Do it when you believe they were only "doing what they are paid to do." Your recognition of the efforts of others costs nothing and improves the experience of everyone in the operating room.

Yes, surgeons are different and we are independent. Nevertheless, functioning on teams is integral to what we do. Surgeons need teams; we really cannot work alone. Therefore, we must learn how to be team members and team leaders if our patients are to get the care that they deserve. ■

Continued from page 15

Through the shared mental model, team members are able to identify when a deviation in the expected plan of care has occurred and are expected to question and clarify these variations. Teams are only as good as their ability to communicate vital information. While these techniques of giving and asking for information have not been previously taught, they are skills that can be learned. Another lesson learned is, while it is not always possible to practice all elements of the MedTeams system at all times, just having a foundation, a common language, and common understanding allows the obstetrical unit a greater degree of safety. Thus, if the smaller core teams are too busy providing patient care to have a meeting, the coordinating team can still meet and have an aerial view of the unit, understand the acuity, and help with resource management until the core groups can meet.

Finally, this culture change would never have occurred without the time and effort of the chairman of the Obstetrics Department, the Labor and Delivery nurse manager, the chief of Obstetrical Anesthesia, and the steering committee articulating the importance of the project and always encouraging input from the staff. Their support and commitment is evidence that the current national focus on error reduction in medicine is, indeed, impacting health care. ■

Notes

- 1 Beth Israel Deaconess Medical Center, in Boston, Massachusetts, is a 532-bed, full service, facility within the CareGroup Healthcare System. The Labor and Delivery unit delivers nearly 5,000 births per year.
- 2 Institute of Medicine, Committee on the Quality of Health Care in America. *To Err is Human: Building a Safer Health System*. Linda Kohn, Janet Corrigan, and Molla Donaldson, ed. Washington, D.C.: National Academy Press, 2000.
- 3 Red Alert: Women's Health Care at Risk *ACOG Today*, May–June 2002
- 4 Annual premiums can be more than \$200,000 per physician with some malpractice carriers refusing to cover obstetrics.
- 5 Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Committee on Quality in Health Care in America. Rona Briere, Ed. Washington, D.C.: National Academy Press, 2001.
- 6 Salisbury ML. Beyond rhetoric: teamwork, a real response to patient safety. *Legal Medicine*. 2002;7–12
- 7 Risser, et al. The potential for improved teamwork to reduce medical errors in the emergency department. *Annals of Emergency Medicine*. 1999;34:373–83.
- 8 Simon R, Salisbury M, Wagner G. MedTeams: teamwork advances emergency department effectiveness and reduces medical errors. *Ambulatory Outreach*. 2000;21–24.
- 9 Barrett J, et al. Enhancing patient safety through teamwork training. *Journal of Healthcare Risk Management*. 2001;21:57–65.
- 10 Morey, et al. Error reduction and performance improvement in the emergency department through formal teamwork training: evaluation results of the MedTeams project. *Health Services Research*. December 2002.